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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,212	09/10/2001	Kazutomi Mori	1163-0355P	2430

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EXAMINER

TRA, ANH QUAN

ART UNIT	PAPER NUMBER
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2816

DATE MAILED: 12/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/936,212

Applicant(s)

MORI ET AL.

Examiner

Quan Tra

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to the amendment filed 11/17/2002. The allowable subject matter of claims 5 and 6 in previous office action has been withdrawn. A new ground of rejection is introduced.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 and 6-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizan et al. (USP 5339047).

As to claims 1 and 2, Mizan et al.'s figure 5 shows a multistage amplifier (circuit comprising two amplifiers 6dB, wherein the detail of each amplifier is shown in figure 1), comprising: a plurality of amplifying elements (the BJTs (figure 1) in each 6dB amplifier) for amplifying an input signal stage by stage and outputting an amplified signal; and a matching circuit (the output matching network in the left 6dB amplifier and the input matching network in the right 6dB amplifier of figure 6), arranged between each pair of amplifying elements adjacent to each other, for performing an impedance matching between the pair of amplifying elements, wherein the matching circuit comprises: a one stage high pass filter (C10, L30 of in the left 6dB amplifier or L3I, C1I in the right 6dB amplifier) type matching unit having a parallel inductor (L30) and a serial capacitor; and one state low pass filter type matching unit (L20 and C20 in the left 6dB amplifier or C2I, L2I in the right 6dB amplifier) serially connected with the one-stage

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high pass filter type matching unit. Thus, figures 5 and 1 show all limitation of the claims except for the circuit comprising more than two amplifier stage so that circuit having plurality of matching circuits. However, it is notorious well known in the art that the gain of multiple stages amplifier circuit is proportional to the number of amplifiers cascade in series. Therefore, it would have been obvious to one having ordinary skill in the art to modify the amplifier circuit in figure 5 to have more than two 6dB amplifiers connected in series for the purpose of increasing the gain of the amplifier circuit.

As to claims 3 and 9, figures 1 and 5 show the one stage high pass filter (C10, L30 of in the left 6dB amplifier) is placed on an input side of the input signal, the low pass filter (L20 and C20 in the left 6dB amplifier) is placed on an output side of the amplified signal

As to claims 4 and 10, figures 1 and 5 show the matching circuit further having one stage low pass filter type matching unit (C2I, L2I in the right 6dB amplifier) is placed on an input side of the input signal, and the one stage high pass filter type matching unit (L3I, C1I in the right 6dB amplifier) is placed on an output side of the amplified signal.

As to claims 6 and 11, figures 1 and 5 shows all limitations of the claims except for the parallel inductor is fabricated by a bias supply short stub having a length equal to or shorter than $\frac{1}{4}$ of wavelength of the input signal. However, it is notorious well known in the art that bias supply short stub is used in high frequency circuit for capacitor or inductor for saving space and power consumption. Therefore, it would have been obvious to one having ordinary skill in the art to use short stub for the parallel inductor for the purpose of saving space. It is also notorious well known in the art that the impedance of the short stub inductor is proportional to the size (length) the short stub. Therefore, it would have been obvious to one having ordinary skill in the

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art to make the length of the short stub to be $\frac{1}{4}$ wavelength of the input signal for the purpose of having a desired impedance for the inductor.

As to claims 7 and 12, figure 1 and 5 shows the one stage low pass filter type matching unit comprises a parallel capacitor (C2I or C20) and a serial inductor (L2I or L20).

As to claims 8 and 13, from the rejection of claim 8, it would have been obvious to one having ordinary skill in the art to use serial line for the serial inductor for the purpose of saving space.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. These references are cited as interest because they show some circuits analogous to the claimed invention.


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan Tra whose telephone number is 703-308-6174. The examiner can normally be reached on 8:00 A.M.-5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 703-308-4876. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



QT
December 14, 2002


Terry D. Cunningham
Primary Examiner